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A STUDY TO DETERMINE THE EFFECT OF TRANSIENCY ON GRADE NINE DEPARTMENTAL EXAMINATIONS MARKS

by

VERNER RICHARD NYBERG

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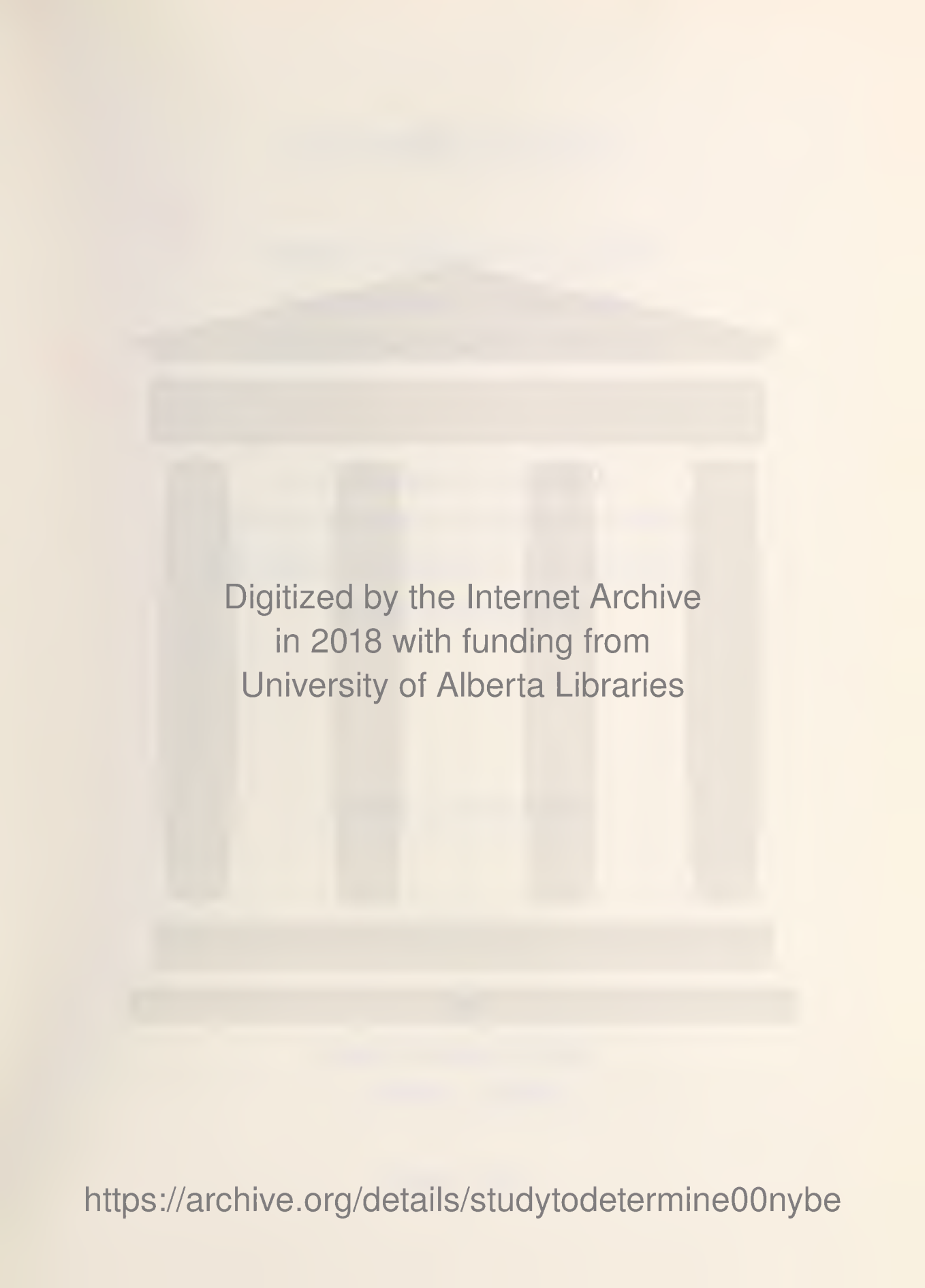
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THE UNIVERSITY OF ALBERTA

A STUDY TO DETERMINE THE EFFECT OF TRANSIENCY ON GRADE NINE DEPARTMENTAL EXAMINATIONS MARKS

A DISSERTATION SUBMITTED
TO THE COMMITTEE ON GRADUATE STUDIES
IN PARTIAL FULFILMENT OF THE DEGREE OF
MASTER OF EDUCATION

FACULTY OF EDUCATION

BY
VERNER RICHARD NYBERG
PROVOST, ALBERTA

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SYNOPSIS

The purpose of this investigation was to determine whether a pupil who transferred from one school to another during his grade nine year would be likely to receive lower or higher marks in the final examinations than if he had attended one school only. To accomplish this, a group of transient pupils was matched, one by one, with a group of non-transients as closely as possible. The average marks of the two groups in each school subject were compared. All pupils included in the study were in the grade nine class of 1952-53, and all marks studied were received in the June examinations of 1953.

It was shown that the achievement in Social Studies of the transient pupils was significantly lower than that of the non-transient group. The marks received by the non-transients as compared to the transients were also better in Mathematics and Science, but were poorer in English Language. However, differences were not considered to be significant. In Literature and Reading the average marks were nearly identical.

In making this study, it was noted that the literature on the subject of transiency was rather limited.

CHAPTER I

THE PROBLEM

The discovery of oil at Leduc, Alberta, in 1947 gave the petroleum industry of this province an impetus that has not yet subsided. Subsequent exploration and discoveries brought in their wake features heretofore unknown. One such feature was the advent of transient workers and their families. In the areas affected by the discovery of oil, terms such as "shanty-town" and "trailer-camp" assumed real significance. In many small towns the turnover of oilfield workers was so rapid that entire families came and departed without leaving a clue as to their origins or destinations. In other instances, transients remained for such short periods that landlords did not have time to discover the names of the people in the trailers in their back yards.

The impact of this influx on the communities concerned was one from which the school did not escape. It was soon felt, in particular, at the primary grade level.[1] Attendance figures taken from a school register of a typical

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[1] The following figures, taken from the School Registers of Calmar S.D. 459, covering the four-year period from September, 1949, to September, 1953, illustrates the greater degree of transiency in the lower grades as compared with the upper grades:

Grade Range	Total Enrolment	No. Transients	% Transients
10 - 12	331	12	4
7 - 9	393	42	11
4 - 6	460	121	26
1 - 3	451	149	33

classroom might reveal that fifty names of pupils were recorded, yet the class never exceeded thirty at any time. Twenty pupils, therefore, or forty per cent, attended more than one school during the year. A closer check might show that some of the pupils transferred in and out several times during the year.

As time went on, it became apparent that transiency was not a feature that would soon pass. Each new oil field discovery meant the arrival and departure of the exploration men, then the entry of drilling crews of many companies who were followed by pipeline gangs, service-rig crews, maintenance and supply men and production personnel. In addition, there were those who conducted their own business ventures and followed the oil development to take advantage of the better opportunities for finding work.

The transiency connected directly with oil is just one phase of the problem in Alberta. The development of industry that followed the discovery of petroleum has increased the number of transients, and, judging from appearances, this situation will likely continue for some time.

The following figures[2] illustrate the fact that transiency is not uncommon in Alberta: Of 718,034 people in the age-group five years and over in 1946, 161,958 had been living in a different census division in 1941. Of

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[2] Census of the Prairie Provinces, Volume 1, POPULATION, 1946, Table 49, p. 591.

these, 119,853 had been in a different part of Alberta at that time, 38,052 had come from other provinces, and the remainder, 4,053, had arrived from other countries.

That the discovery of oil altered the transiency picture is supported by the following figures for the net interprovincial migration as it affected Alberta:[3]

TABLE I

NET CHANGE IN POPULATION OF ALBERTA
RESULTING FROM INTERPROVINCIAL MIGRATION

Time Interval	Population Change	Average Annual Change
June 1, 1931 to June 1, 1941	42,000 decrease	-4,200
June 1, 1941 to April 1, 1944	15,000 decrease	-5,300
April 1, 1944 to Sept. 1, 1946	42,000 decrease	-18,700
June 1, 1946 to June 1, 1947	1,000 increase	+1,000
June 1, 1947 to June 1, 1948	6,000 increase	+6,000
June 1, 1948 to June 1, 1949	9,000 increase	+9,000

The figures given do not tell whether the incidence of pupil transiency has changed, but it does not seem unreasonable to assume that transiency of school students has increased roughly in proportion to the change for the population in general. Also, if it is reasonable to assume that

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[3] Canada Year Book, 1951, Section 2, Table 6, p. 119.

industrial development will continue in Alberta it seems evident that transiency will be a feature common in the province's school population for some time to come.

The proportion of transients will vary greatly from the purely agricultural regions, where the population tends to be rather stable, to the centres of industry, where many factors help to promote transiency. It is difficult, then, to arrive at any figure that would be representative of the province as a whole. Suffice it to say that transiency, including that of school children, is at present considerably greater than it has been. It follows that problems arising from the shift in population are greater than before. Finally, there seem to be no indications at present that movements of population are going to decrease in the near future.

Purpose of this Study

It is readily seen that transiency could be the cause of many problems pertinent to the school. Any research conducted with limited time and resources must necessarily be carried out within a small and definite range.

The purpose of this study is to determine the effect of transiency on the marks received by grade nine pupils in Alberta on the Departmental Examinations of June, 1953. In other words, the purpose is to test the hypothesis that transiency <u>per se</u> tends to cause a pupil to get higher or lower marks than he would receive if he remained in one school. To

state the problem in yet another way, this study is to determine whether the changes resulting from transiency, such as (1) becoming adapted to a new school situation, (2) becoming adapted to a new home life, and (3) coming into contact with a new social group, (to mention only a few) will enhance pupil achievement in grade nine, have a detrimental effect, or have no effect upon it.

The problem is <u>not</u> to find out whether the transient pupil, on the average, is a better or poorer student than the average non-transient, but to discover whether he gains or loses or is not affected by a transfer from one school to another.

It has already been pointed out that the greatest number of transient pupils occurs in the lower grades. The question might be raised as to why grade nine was selected as the field for study. The only reason for choosing this grade was that it is the lowest grade in Alberta where Departmental examinations are administered, and, therefore, the lowest grade where there is a more or less uniform standard for the province in all subjects. Also, since all pupils in this grade in a given year are given the same intelligence test under approximately uniform conditions, it was possible to control the variables of mental ability without becoming committed to the gigantic task of getting comparable intelligence quotients for a large number of pupils.

CHAPTER II

REVIEW OF THE LITERATURE

Considerable time and effort have been devoted to the study of transient children, particularly in the United States where migration is a genuine problem, and to a smaller extent in the United Kingdom. In most of the studies the emphasis is not on determining the effect of transiency but on the fact that transients seem to be doing rather poorly in school.

In general, two distinct methods of treating the subject were encountered. The truly scientific studies, where the problem was clearly defined, the method of approach set down, and the findings carefully noted, were the most informative but by no means the most plentiful. The other approach to the problem was less clear-cut and was non-statistical, but nevertheless of value for the purposes of this study. In most cases, the non-scientific studies were prompted by obvious difficulties, caused by transiency, that required immediate solutions. Experts in education were called upon to scan the situation and to make recommendations.

This chapter will deal with some outstanding examples of both types of analyses.

Scientific Studies

The earliest study encountered[1], which was done on a

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[1]Everett B. Sackett, "The Effect of Moving on Educational Status of Children," Elementary School Journal, March, 1935, pp. 517-526.

scientific basis, was that completed by E.B. Sackett in 1934 in the Panama Canal Zone. Material compiled by another researcher, G.E. Joy, for a similar study, was used to compare a group of transient pupils in grades seven and eight with a non-transient group of the same grade levels. Transient pupils were defined as those who had attended school outside of the Canal Zone. This group consisted almost entirely of children of army officers. The native group showed no record of attendance outside of the region. In all, 101 pairs were formed and analysed. The variables of age, intelligence, grade placement and sex were controlled by the matched-pairs technique.

Sackett concluded that the transient children in grade seven and eight excelled in all subjects except arithmetic computation. It was pointed out that the causes of the differences between the two groups were not revealed by the study, but a number of possible reasons were suggested.

It could well be that the differences noted by Sackett resulted from factors other than transiency. The most likely alternative, not suggested in the study, is that the migrant group was composed of pupils of above-average ability. Some evidence to support this alternative can be gathered from the following statements:[2] "In general,

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[2]Quoted by Sackett from N. L. Englehardt, "Report of the Survey of the Schools of the Panama Canal Zone," Panama Canal Zone Press, Canal Zone, 1930, p. 79.

the results of the tests show that pupils in the Canal Zone both of a given age and of a given grade are achieving beyond the norms established for children in the United States ...". "Several factors contributed to the high achievement of the Canal Zone children. In the first place, the intelligence of the Canal Zone pupils, as revealed by tests administered by the survey staff, is decidedly above the average." The tests referred to were a battery of standardized achievement and intelligence tests given to all school pupils in the area. There is no doubt that the group studied was above average by the American scale, because the majority of the transients were children of army officers. The family of an army officer is likely to enjoy standards considerably above the average in the United States.

Another apparent weakness in the study in question was that the better showing made by the transient pupils could have been caused by superior teaching received in the United States. Sackett dismissed this possibility and concluded that the educational standards in his area were higher when he noted that the achievement of the Canal Zone pupils was above the norms for American pupils.

Since the average intelligence of all the pupils in the Zone was above normal, an above-average achievement was to be expected. Therefore, while the achievement, in some areas, of the transients was better than that of the non-

transients, any conclusion regarding the effect of migration or the teaching standards of the area was likely premature.

It is suggested, therefore, that Sackett's findings do not necessarily indicate that transiency tends to better the achievement of pupils in grade seven and eight. Furthermore, because of the twenty-year time lapse since Sackett's study was made, and the difference in origin of the pupils, it probably would not be wise to draw conclusions regarding transient students in Alberta based on the results of the study carried out in the Panama Canal Zone.

Another scientific study dealing with transient pupils was carried out by Helen Huus in 1943.[3] Information was gathered by means of tests, a questionnaire and a specially constructed interest inventory, from a total of 272 school pupils made up of 97 non-migrants and 175 migrants. The object of the study was to test five hypotheses, connected with reading achievement, which were first set up. These hypotheses need not concern us, but the findings are of interest.

Huus found that:

(1) the same factors affected the reading achievement of both groups, regardless of migration.

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[3]Helen Huus, "Factors Associated with the Reading Achievement of Children from a Migratory Population," The Elementary School Journal, December, 1944, and January, 1945, pp. 203-212 and pp. 276-285, respectively.

(2) the regions of origin did show a relation to achievement.

(3) those who migrated frequently did not have a range of interest different from others.

(4) there were differences in the number of newspapers, magazines and library cards in favor of the non-migrants. These factors were shown to be important.

(5) the findings regarding the transient child's feeling of insecurity were inconclusive. There was some evidence of poor adjustment.

In addition to describing her own research project, Huus reviewed several done by others on the subject of transiency.[4] Stated very briefly, the findings quoted by Huus,

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[4] M.V. Seagoe, "The Transient Child," Journal of Educational Research, July, 1932, pp. 251-257.

D.T. Dawe, "Migratory Children in Kern County," Sierra Educational News, September, 1938, pp. 12-38.

J.F. Grant, "Educational Achievement and Needs of Migratory Children in California," California Journal of Elementary Education, August, 1942, pp. 22-30.

G.C. Finney, A Comparative Study of the Relative Achievement of English and Spanish Transient and Non-transient Sixth Grade Groups. Unpublished Master's Thesis,

M. Muntz, Transiency and its Relation to the Progress of Pupils, Unpublished Master's Thesis, University of Arizona, 1937.

R. Walton, "Educating the Asphalt Arab," Nation's Schools, April, 1937, pp. 34-38.

E.B. Sackett, "The Effect of Moving on the Educational Status of Children," Elementary School Journal, March, 1935, pp. 517-526.

E.D. Tetreau and V. Fuller, "Some Factors Associated with the School Achievement of Children in Migrant Families," Elementary School Journal, February, 1942, pp. 423-431.

are as follows:

(1) Non-migrants were superior in total school achievement. (Seagoe, Dawe and Grant).

(2) Non-migrants were superior in all except geography, history, civics and arithmetic problems. (Finney).

(3) Non-migrants were better in some grades but poorer in others. (Muntz).

(4) Of 167 migrant pupils in Imperial Valley, California, 15.5% were at normal grade placement. (Walton).

(5) In the Panama Canal Zone, transient children were handicapped very little. (Sackett).[5]

(6) The average number of moves each year had no bearing on reading achievement. (Tetreau and Fuller).

The study by Huus was reviewed here because it indicated that, in some respects at least, the migrant school children were different from the non-migrant pupils. The studies reviewed by Huus were also mentioned because they indicated that there were differing opinions concerning transients. It would be difficult, however, to apply any of the findings listed by Huus to the grade nine pupils in Alberta schools.

The most recent study encountered was done by N.M. Downie in 1949 at Hermiston, Oregon.[6] Eighteen classes

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[5]This is the same study dealt with previously. The writer noted that Sackett actually considered transiency to improve, rather than limit, achievement.

[6]N.M. Downie, "A Comparison Between Children who have Moved from School to School with Those who have been in Continuous Residence on Various Factors of Adjustment," Journal of Educational Psychology, January, 1953, pp. 50-63.

ranging from grade five to eight, involving approximately 150 non-transient and 200 transient pupils, were given the Otis S.A. Test of Mental Ability and twelve sociometric tests.

Hermiston, Oregon, was the site of two large industrial developments at the time Downie made the study. These projects caused a great influx of people, mostly workmen. The 300 transient pupils were, therefore, almost all children of industrial laborers who had recently moved in and the non-transients were permanent residents of the region.

Two important conclusions were reached as a result of the tests. First, the Otis test revealed no significant differences in the distribution of I.Q.'s The second conclusion was more involved and less clear-cut. The indications were that the pupils most socially acceptable were the transients who had moved into the area from one to two years prior to the time of the study, while the least acceptable pupils, socially, were those who had been living in the region for more than two years and also those who had lived in the region for less than one year. Furthermore, those who had moved many times tended to be less accepted. While these findings are of little direct value for the purposes of this study, they do show, again, that transiency seems to affect pupils in areas other than that of academic achievement.

Non-scientific Projects

An article of some pertinence but of little value to this study is one written by W. Gaumintz.[7] The article is not meant to outline a statistical analysis but is intended to give the writer's opinions as to how migrant pupils might be helped to improve in their school work.

In his article, Gaumintz first cites a few examples where statistics show that migrants are retarded, and then gives a few figures showing how the enrolment of a school might fluctuate because of transiency. This rather meagre information is taken to be conclusive evidence that migrant children -- in this case children of seasonal agricultural workers -- are poor students. A number of reasons for this retardation are then suggested. First, no authority feels responsible for providing educational facilities; second, it is easy for the migrants to evade the school attendance laws; and last of all, parents are all too willing to keep their children out of school so that they can be put to work.

The report by Gaumintz has little direct bearing on the problem studied here, since most of the agricultural workers go from state to state, are of different racial background from the majority of the people in the region where

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[7]Walter Gaumintz, "Problems of School Organization resulting from Migration," National Society for the Study of Education, Part 2, 1945, pp. 43-55.

they work and certainly are not of average socio-economic status. Beyond the few examples already mentioned, no figures are given to show that transient pupils really are retarded, nor (assuming that the migrant children are slow in school) what the causes of the poor progress might be. The article does demonstrate, however, that migrancy can be a problem and it gives suggestions for helping transient children in the field of education. The chief reason, however, for including a summary of the work by Gaumintz is that it is typical of that done by many other writers who "prove" that transients are very poor students by citing a few examples, and who tacitly assume that the transiency itself is the cause of the retardation. While migrancy could well be the cause of the poor achievement in school, many writers of small articles fail to mention that there are other possible causes as well.

A number of articles which have appeared in recent years in the Times Educational Supplement have dealt with the problem of transiency in the United Kingdom. Three of these articles in particular yield some information concerning the scholastic standings of different groups of migrants.[8] Some of the more pertinent points given in the

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[8]A Times Reporter, Times Educational Supplement, January 22, 1949, p. 53, April 11, 1952, p. 310, and June 22, 1952, p. 533.

articles are the following: True gypsies have a rich cultural background which compensates for their lack of formal education, while the modern roamers have not; gypsy children are usually isolated because of low standards of cleanliness and appalling living conditions and usually have a sense of outlawery; circus children come from a better background and do attend school; circus children possess special skills that bring them into a group; circus children are of normal intelligence but are left hopelessly behind because of poor attendance at school; canal boat children live in cramped quarters with no play or visiting space and with little room to do homework.

In these articles, no authority is given for any of the statements, and there is no indication as to the extent of the studies made by the writers. There is no evidence that there has been any project that could be called scientific, but, bearing in mind that the articles were written for the news reader, it is reasonable to assume that competent reporters made the surveys of the problem of transiency with considerable care.

The information offered in the three articles has little direct bearing on this study, but the facts presented would seem to indicate that transiency must be considered a problem in the United Kingdom and that the feeling is that something should be done for the children of parents who

migrate.

A number of bulletins obtainable from the Office of Education in Washington, D.C., give helpful information regarding the problem of migrancy in the United States. Most of this literature derives from four regional conferences held in various parts of the country during May and June of 1952. These meetings were attended by supervisors of various branches of education from those states where migration of agricultural workers exists to a marked degree. A complete report of the conferences was prepared.[9]

The conferences dealt chiefly with problems caused by migrancy. Little time was devoted to determining the extent of transiency; in fact, the assumption that migration of workers was a significant characteristic of society in the United States was made early in the meetings and recorded in the report. However, during the progress of the conferences, a certain amount of statistical data came to light.

The first two points brought out at the meetings were: Migrant children miss a great deal of school, often failing to register at all while living in some places; the community tends to reject strangers who come and go frequently.

Another point suggested at the meetings was that many embellished accounts of the problem of transiency are found.

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[9] Report of Regional Conferences on Education of Migrant Children, Federal Security Agency, Office of Education, Washington, D.C., July, 1952.

The statements in the following quotation underscore the suggestion:

> We note, in reading various articles, rather biased accounts of the terrible retardation of migrant children. It is true that they are retarded as a group, and that prior to the last few years little had been done for these people by educators or by anyone else for that matter. When I say biased I say it with respect to those who have much to say about the bad features, the highly controversial features, the sensational features, and those who attack the schools for not having done something about the problem before. The problem is not new, it has been with us for many years.[10]

The final point brought out during the conference was that migrants tend to become retarded in school. This was illustrated by the information given in Table II, shown on the next page. The figures to the left of the numbers indicated by an asterisk represent pupils who are retarded, while those above and to the right indicate pupils who are accelerated.

There is no doubt that the migrants in the Hollandale Public Schools are quite retarded, since almost four-fifths of the pupils are at least one year older than the national average for each of the various grades. The small number of pupils (one) who are younger than the average student in the group is a further indication that there is a definite retardation.

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[10] The Story of Hollandale, (p.2), a mimeographed booklet issued on the suggestion of the Regional Conferences on the Education of Migrant Children, and quoted from H.S. Anderson, Some Problems of Educating the Children of Migrants, University of Minnesota, 1953, p. (not given).

TABLE II

AGE AND LAST GRADE ATTENDED OF A GROUP OF FORTY-EIGHT MIGRANT CHILDREN ATTENDING THE HOLLANDALE PUBLIC SCHOOLS DURING THE FALL OF 1952[11]

AGE	TOTAL ALL GRADES	LAST GRADE ATTENDED								
		0	1	2	3	4	5	6	7	8
Total, All ages	48	0	7	8	11	9	4	5	3	1
6 years	3		3*							
7 years	6		3	2*	1					
8 years	4		1	2	1*					
9 years	4			3		1*				
10 years	8				5	3	0*			
11 years	6		1	2	3			0*		
12 years	5			2	1				2*	
13 years	5					1	1	2	1	0*
14 years	5						3	1		1
15 years	2							2		

Note: The asterisk (*) indicates normal age-grade level.

In commenting on the retardation indicated in Table II, the delegates of the Regional Conference pointed out that while transiency was regarded as the most important contributing factor, there were other reasons as well for the slow school-progress of the migrants.

More data concerning the grade level of migrant

[11] Ibid., p. 3.

school pupils are found in a bulletin released by the United States Office of Education, which contains a report on the education of migrant children.[12] Table III is taken from this report.

TABLE III

DISTRIBUTION OF 1690 MIGRANT FARM CHILDREN OF THE NEW YORK REGIONS BY AGE AND GRADE

Grade \ Age	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	19.
Special	2	2	4	7	9	7	6	2	2			1			
K	9	49	21	6											
1		29	100	62	16	5	1	2							
2		1	36	81	61	27	12	3		1					
3			2	23	79	60	36	17	5		4				
4					16	59	53	23	26	8	7				
5					2	18	53	47	40	11	11	4			
6						1	13	46	58	25	28	12	3	1	
7								18	37	30	34	17	7		
8								2	5	31	38	26	2		
9										4	15	20	7	1	
10										1	5	11	5		
11												6	5	2	
12													2	3	1

[12] Report from New York State on the Education of Migrant Children, Office of Education, Washington, D.C., June 22, 1953, p. 5.

The pupils represented by the figures in Table III were in attendance in seventy schools. The normal age for the grade is indicated by the blocked squares; the numbers to the left and below indicate underage or acceleration, while the numbers to the right and above indicate overage or retardation. The large group in the latter category indicates that the migrants tend to be slow in school.

The reason for the concern about agricultural migrants by various government bodies is summed up in the following statement: "...within this constant movement of workers is found the hard cores of the uneducated whose needs are largely unmet.[13]

Evidently, in the United States the problems caused by migration are serious and call for some kind of solution. Furthermore, it is evident that migration is associated with retardation and illiteracy among school pupils. It must be stressed at this point, however, that, despite all that has been written on the subject of transiency, there is little or no evidence that migrancy itself is the cause -- certainly not the major cause -- of the poor showing in school of the children of workers who move frequently. The fact that transiency and retardation go together does not mean that one causes the other.

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[13] Report on Regional Conferences of Education of Migrant Children, Federal Security Agency, Office of Education, Washington, D.C., July, 1952, p. 1.

No literature was found that discussed transiency in Canada, but this does not necessarily mean that the problem does not exist. When one views the present situation in the United States and in Britain one wonders if the same conditions will eventually develop here in Canada. If this proves to be the case, Alberta will not escape the difficulty, since the population is growing and the trend towards industrialization is continuing.

CHAPTER III

PROCEDURE

Definition of Terms

For the purposes of this study it was found necessary to define a number of commonly used terms more precisely and even to give some of them slightly different meaning from those encountered in everyday usage. These definitions appear below under the appropriate headings.

Transient Pupil

A transient pupil, for the purpose of this study, was one who transferred at least once from one school to another during his grade nine year. The last transfer was made after the first of November, 1952, and before June the first of 1953. The following limitations were also placed on this group to rule out certain variable factors which otherwise might have affected the results of this study: (a) Pupils who showed a record of school attendance outside of Alberta while in grades seven to nine were not included. (b) No pupil who completed the year in a small school[1] was considered. (c) Those pupils who were repeating grade nine or who had repeated either grades seven or eight were excluded. (d) Pupils who had been accelerated while in Junior

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[1] See page 23 for a definition of this term.

High School were not included.

Non-transient Pupil

For this study, a non-transient pupil was defined as one who showed no record of attendance outside Alberta while in grades seven to nine, who had not repeated one of those grades and one who had not transferred from one school to another during the school year while in grades seven, eight or nine. Pupils who changed schools between terms were not ruled out for the reason that a family which moves during the summer normally has time to get settled in the new community before classes begin in September. Another reason for not excluding the latter group was that many of the pupil transfers that occur at the end of grade eight result from centralization, that is, pupils from smaller schools commonly attend larger schools from grade nine through high school.

Small School

A small school, for purposes of this study, was one with a grade nine enrolment of less than sixteen pupils, or one in which there was not a separate room for grade nine pupils. All ungraded schools came under this heading.

City School

A city school was taken to be one in Edmonton,

Calgary, Lethbridge or Medicine Hat, that is to say, a school in one of Alberta's larger cities.

Town and Centralized School

As the name implies, town and centralized schools include those in towns and in the larger centralizations. However, the schools in the smaller cities were included here because they were considered more akin to those in this group than to those in the larger cities.

Data Required

To complete this study, information from a considerable number of grade nine pupils was required. This information included: Personal data, such as name and age; information concerning schools attended in grades seven to nine and the number of months spent in each; and the marks obtained by the pupils in each of the subjects included in the Grade IX final examinations conducted by the Department of Education.

Methods of Securing Data

About twenty-five hundred copies of a form were printed. On these the pupils themselves could place the personal data, name the school being attended at the time and list the schools previously attended in grades seven to nine with the corresponding time spent in each.[2]

[2]See Appendix A, Form I.

The next step was to contact as many superintendents and principals as possible so that the forms could be distributed and filled in by all the grade nine pupils in each school involved. It was deemed wise to contact school officials personally to insure prompt action. Since the details of transiency could not be obtained until the school year was well advanced, there was the problem of getting teachers to perform a task voluntarily when the pressure of their own work was at its greatest.

The material was arranged so that the teacher in charge of a grade nine room would distribute the forms, answer any questions asked by the pupils, collect the forms, place them in the addressed envelope supplied and mail them.

The response was very good. Over two thousand completed cards were returned by the end of June, 1953. However, the number representing pupils defined as transients was rather smaller than anticipated, numbering only about seventy.

To increase the number of transient cases, the files of the Department of Education were consulted early in September of 1953. A list of grade nine pupils who had attended more than one school during the preceding term was prepared. The list, of course, was made up of pupils from schools not already represented in the data so far collected. Individual letters, along with a form and a self-addressed envelope, were sent to each pupil listed, stating briefly the purpose

of the request. Seventy-two letters were sent out during September and October and by the middle of November, fifty-nine had been returned. The number of cases defined as transients was thus increased to well over one hundred.

The next step was to secure from the records of the Department of Education the marks received by the pupils in the grade nine final examinations. The attendance figures supplied to the Department of Education office by the teachers, were also recorded. Since, at this stage, it had not yet been decided exactly which pupils were to be included in the study, it was necessary to copy the marks received by all the pupils, about two thousand, who had completed the cards previously mentioned. The personal data supplied by the pupils on the form was checked against the information given to the Department. Cases where records were incomplete were not considered further. This phase of the study was completed early in December of 1953.

Selection of Data

For each pupil so far classified as a transient a corresponding non-transient was found. The pairing was done with considerable care because the extent to which the variables of sex, age, mental ability, attendance and type of school attended could be controlled depended upon how closely each transient could be matched with a non-transient. Members

of a pair had to be of the same sex, of the same age (within seven months, if possible[3]), of nearly the same achievement in the test of mental ability (within five percentile points), and of nearly the same attendance (within fifteen days, if possible[4]). In addition, pairs were chosen so that the types of schools attended in each case were nearly the same. The matching, with respect to this factor, consisted mainly of seeing to it that no pupil who had spent most of his time in a city school was paired with one who had attended mainly a town, village or centralized school. Other factors were set as nearly equal as the choice permitted. For example, pupils from separate schools were paired with each other as often as could be arranged. No set limits with respect to these factors, however, were devised, because it was considered unnecessary to do so.

When the pairs, one hundred in all, were established they were closely checked again. To guard against the possibility of giving one group or the other an advantage resulting from small differences being unconsciously but consistently allowed when each of the pairs was constituted, a number of grand totals for each group were struck. The scores on the general test, the attendance in days, the age in months, the

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[3]Three exceptions were made in order to make pairs.

[4]Four exceptions were made in order to make pairs.

time in months spent in each type of school attended in grades seven to nine, and the time in grade nine only, were totalled for each group and differences noted. Changes in the pairs were made so that the grand totals were more nearly the same. Tables showing personal data for each group were set up so that final comparison could be made. Table IV, which begins on the next page, gives the attendance in days and the achievement on the General Test as a percentile rank for each member of the one hundred pairs. Table V, which follows Table IV, gives a summary of the statistical analysis of the information represented by the figures in the latter table.

In view of the low critical ratios found in Table V, it may be concluded that there is no significant difference in the average number of days attended by each group, nor is the variability of the attendance of one group significantly different from that of the other. In the case of the General Test, and of age, it is readily seen that the groups are nearly identical. This applies to the variability as well as to the mean score. It may be concluded that any differences between the transient and non-transient pupils in the performance on the grade IX examinations is not attributable to differences in attendance and age nor to unequal mental abilities.

TABLE IV

ATTENDANCE AND GENERAL TEST SCORES AND AGES OF THE ONE HUNDRED MATCHED PAIRS OF TRANSIENT AND NON-TRANSIENT STUDENTS USED IN THIS STUDY

PAIR NO.	ATTENDANCE (Days)		GENERAL TEST (%ile Rank)		AGE (Years & Months)	
	Trans't	Non-Trans't	Trans't	Non-Trans't	Trans't	Non-Trans't
1	175.0	177.5	45	45	16- 4	16- 4
2	177.0	181.0	41	40	15- 9	15-10
3	191.5	185.0	84	84	14- 7	14- 6
4	175.0	177.0	62	62	15- 1	15- 2
5	148.5	156.5	52	50	16- 6	16- 4
6	147.5	165.0	86	86	15- 8	15- 5
7	164.0	171.0	44	44	15- 7	15- 8
8	161.5	158.5	80	84	14- 9	14- 6
9	136.5	148.5	35	34	15- 8	15- 9
10	166.5	161.0	54	55	15- 8	15- 7
11	171.5	168.0	31	30	15- 8	15-11
12	186.5	183.0	35	35	16- 8	17- 1
13	189.5	193.0	12	17	17- 1	16-11
14	155.0	158.5	74	76	15-10	16- 1
15	155.0	159.0	52	52	15-10	15- 2
16	180.0	173.0	37	37	15- 1	15- 4
17	131.0	134.0	51	51	15- 8	15- 1
18	161.5	157.5	74	76	15- 5	15- 3
19	177.0	172.5	84	84	14- 5	14- 9
20	167.5	167.0	29	30	14- 5	14-11
21	176.5	186.0	37	40	15- 6	15- 6
22	176.5	179.0	55	55	15- 6	15- 6
23	186.5	186.0	51	55	14- 6	14- 6
24	169.5	188.0	60	59	14- 6	14- 6
25	176.5	175.0	52	50	16- 9	16- 7
26	179.0	166.0	67	69	14- 6	14- 6
27	184.0	192.0	35	35	15- 8	15- 7
28	178.0	171.0	56	56	15- 7	15- 7
29	182.0	174.0	50	52	14- 7	14- 7
30	178.5	184.0	48	49	15- 8	15- 8
31	191.5	195.0	67	67	15- 8	15- 8
32	165.0	169.5	39	39	14- 8	14- 8
33	169.5	180.0	71	69	14- 8	14- 8
34	181.5	189.5	73	71	15- 9	15- 9
35	187.0	185.5	52	50	15-11	15-11

TABLE IV (Continued)

PAIR NO.	ATTENDANCE (Days)		GENERAL TEST (%ile Rank)		AGE (Years ' Months)	
	Trans't	Non-Trans't	Trans't	Non-Trans't	Trans't	Non-Trans't
36	168.0	170.0	55	52	15- 5	15- 5
37	169.5	173.5	50	51	15- 5	15- 5
38	170.0	180.0	42	44	15- 5	15- 5
39	184.0	174.0	86	82	15- 3	15- 3
40	183.0	192.0	82	84	14- 3	14- 5
41	174.5	181.0	48	52	15- 3	15- 3
42	184.5	188.0	60	62	15- 3	15- 3
43	189.0	195.0	29	32	15- 5	15- 5
44	184.5	171.0	39	39	14-10	14-10
45	185.5	185.0	59	57	14-10	14-10
46	158.0	162.5	59	59	14-10	14-10
47	176.5	178.5	59	59	14-10	14-10
48	175.0	167.5	65	65	14-10	14-10
49	179.5	186.0	67	69	14-10	14-10
50	171.5	168.5	82	80	14-10	14- 9
51	172.5	177.0	54	55	15- 0	15- 1
52	175.0	178.0	59	59	15- 1	15- 4
53	173.0	160.5	44	45	16- 0	16- 0
54	169.5	175.5	67	67	16- 0	16- 0
55	164.0	170.0	36	36	15- 0	15- 0
56	190.5	190.0	40	39	15- 0	15- 0
57	182.0	181.5	56	55	15- 0	15- 0
58	184.0	178.0	69	69	15- 0	15- 0
59	177.0	176.0	46	44	15- 4	15- 4
60	185.0	181.0	30	31	16- 1	16- 1
61	173.5	180.5	62	60	16- 2	16- 2
62	176.5	179.5	45	44	15- 2	15- 2
63	168.0	169.0	52	52	15- 2	15- 2
64	189.5	194.0	69	69	15- 2	15- 2
65	181.0	184.0	48	45	14- 2	14- 2
66	174.0	181.0	40	36	16- 2	16- 2
67	193.0	189.0	27	28	17- 5	17- 4
68	186.5	189.5	21	21	15- 5	15- 4
69	174.5	185.5	73	73	15- 5	15- 4
70	170.0	172.5	74	74	15- 5	15- 4

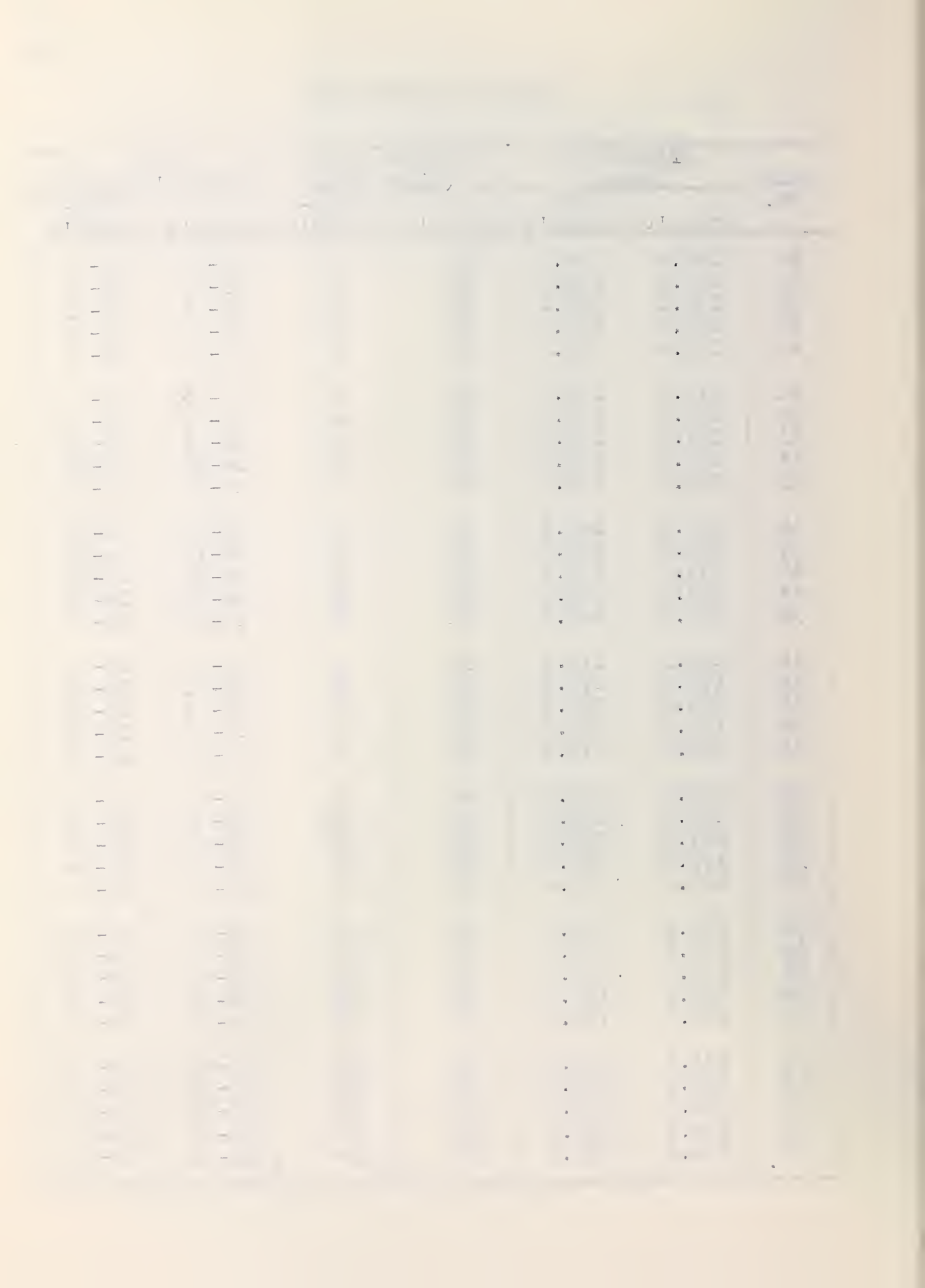

TABLE IV (Continued)

PAIR NO.	ATTENDANCE (Days)		GENERAL TEST (%ile Rank)		AGE (Years & Months)	
	Trans't	Non-Trans't	Trans't	Non-Trans't	Trans't	Non-Trans't
71	170.0	163.0	56	57	15- 4	15- 4
72	138.5	155.5	80	78	15- 5	16- 2
73	182.0	180.5	59	60	17- 2	16- 6
74	178.5	168.0	44	44	15- 0	15- 3
75	187.5	194.0	94	94	14- 0	14- 7
76	169.0	166.0	50	52	16- 1	15- 9
77	164.0	160.5	44	45	16- 0	15- 7
78	161.0	170.0	64	64	14-11	15- 3
79	180.0	184.0	80	82	13-11	13- 7
80	178.5	174.0	35	36	14-11	14- 8
81	156.5	160.0	65	62	15- 3	15- 6
82	156.0	161.0	62	60	15- 2	14-11
83	158.0	165.0	41	40	15- 2	15- 3
84	169.0	161.0	42	46	16- 2	15- 9
85	111.5	141.5	73	73	15- 3	15- 0
86	170.0	184.5	94	94	14- 3	14-11
87	179.0	182.5	92	88	14- 4	14- 8
88	172.5	172.0	31	34	15- 4	15- 2
89	174.5	169.0	35	34	15- 5	15- 5
90	143.0	151.5	62	50	16- 6	16- 0
91	185.0	176.5	21	23	16- 5	16- 0
92	167.0	171.0	84	86	15- 6	14-11
93	191.5	194.5	73	73	13- 6	13-10
94	172.5	172.0	29	28	13- 6	13- 9
95	177.5	161.5	73	74	15- 4	15- 5
96	170.0	174.0	74	74	14- 8	14-11
97	168.0	175.0	57	57	15- 0	15- 2
98	158.0	154.0	49	49	15- 5	15- 3
99	162.5	168.5	51	51	14- 2	14- 6
100	178.5	178.0	45	46	15- 8	15- 3
Mean	172.4	174.2	55.28	55.40	15.30	15.30
SD	12.99	12.02	18.05	17.73	8.84	7.84

TABLE V

RESULTS OF STATISTICAL ANALYSIS OF ATTENDANCE AND AGE FIGURES AND OF PERCENTILE RANKS ATTAINED BY TRANSIENT AND NON-TRANSIENT PUPILS ON THE DEPARTMENTAL GENERAL TEST[5]

Item Analysed	Means		Differences in Means (M_2-M_1)	Standard Deviations		Differences in Standard Deviations	Critical Ratios Pertaining to-	
	M_1 Transient	M_2 Non Transient		Transient	Non-Transient		Means	Standard Deviations
Attendance (days)	172.4	174.2	1.80	12.99	12.02	0.97	1.01	0.77
General Test (%ile Ranks)	55.28	55.40	0.12	18.05	17.73	0.32	0.05	0.18
Age (years)	15.30	15.30	0.00	8.84	7.84	1.00	0.00	1.43

[5] For formulae used in deriving the data of this table, see Appendix B, page 44.

CHAPTER IV

RESULTS

Table VI, on the following page, shows the distribution of the marks received by the transient and non-transient pupils on the final examinations. Table VII, which follows immediately after Table VI, gives a summary of the statistical analysis of the marks received by the two groups. The figures in the summary table reveal the extent and significance of any differences between the two groups.

In the case of each grade IX subject, a null hypothesis that there was no real difference between the transient pupils and the non-transient pupils was set up. In the light of the critical ratios derived for each subject the null hypothesis was then accepted or rejected.

It should be borne in mind, while studying the figures in Table VII, that a critical ratio of 1.98 or over, as applied to the arithmetic means, would indicate a real difference, at the .05 level of confidence, between the transient and non-transient groups. A critical ratio approaching 1.98 in the case of the standard deviations would indicate that there is a great difference in the variability of each group and would cast doubt on any conclusions reached.

The critical ratios, given in Table VII, suggest that only in the case of Social Studies must the null hypothesis

TABLE VI

DISTRIBUTION OF MARKS OF TRANSIENT AND NON-TRANSIENT PUPILS ON GRADE IX EXAMINATIONS IN READING, LITERATURE, LANGUAGE, SOCIAL STUDIES, MATHEMATICS AND SCIENCE

SCORE[1]	FREQUENCY											
	Reading		Literature		Language		Soc. Studies		Mathematics		Science	
	Trans	Non-Trans	Trans	Non-Trans	Trans	Non-Trans	Trans	Non-Trans	Trans	Non-Trans	Trans	Non-Trans
93-97					1		1		1	1	2	
88-92	3	2			3	2	2	2	1	3	3	2
83-87	6	4			3	5	2	2	4	3	1	2
78-82	7	6			2	3	3	5	1	3	2	3
73-77	5	9			1	5	3	3	2	7	3	5
68-72	1	3			10	8	4	8	5	5	6	7
63-67	5	6			6	6	9	8	8	7	6	7
58-62	12	14			11	12	7	12	14	13	7	17
53-57	12	13			16	15	7	12	9	13	7	6
48-52	19	9			14	13	11	20	13	11	7	8
43-47	10	14	8	3	6	9	9	4	13	6	11	12
38-42	7	8	7	11	10	13	11	10	10	8	12	10
33-37	10	5	13	17	3	4	16	2	7	8	13	11
28-32	2	3	24	20	4	1	7	6	4	7	11	6
23-27		4	25	26	9		6	5	4	3	4	4
18-22	1		11	12		3		1	1	2	3	
13-17			11	7		1	2		3		1	
8-12			1	4	1						1	
Mean	55.83	55.81	28.22	28.18	53.34	55.33	48.95	53.89	51.40	54.26	48.81	53.00
SD	16.09	16.07	8.46	8.28	17.15	15.59	17.37	15.88	16.59	17.48	18.69	16.02

[1] All scores are percentage gradings with the exception of Literature, for which raw scores are given.

TABLE VII

RESULTS OF STATISTICAL ANALYSIS OF MARKS RECEIVED BY BOTH TRANSIENT AND NON-TRANSIENT GROUPS IN DEPARTMENTAL EXAMINATIONS[2]

Subject	Means		Differences in Means	Standard Deviations		Differences in Standard Deviations	Critical Ratios Pertaining to--	
	Transient M_1	Non-Transient M_2	M_2-M_1	Transient CR_1	Non-Transient CR_2	CR_1-CR_2	Means	Standard Deviations
Reading	55.83	55.81	(-)0.02	16.09	16.07	0.02	0.01	0.01
Literature	28.22	28.18	(-)0.04	8.46	8.28	0.18	0.03	0.22
Language	53.34	55.33	1.99	17.15	15.59	1.56	0.85	0.95
Social Studies	48.95	53.89	4.94	17.37	15.88	1.49	2.09	0.89
Mathematics	51.40	54.26	3.86	16.59	17.48	(-)0.89	1.59	0.52
Science	48.81	53.00	4.19	18.69	16.02	2.67	1.70	1.53

[2]For formulae used in deriving the data of this table see Appendix B, page 44.

that the two groups are drawn from the same population be rejected. A difference between the means as great as that shown is significant at the .05 level of confidence. In the case of Reading, Literature, Language, Mathematics and Science, the null hypothesis must be accepted. The difference between the means in each case is attributable to chance or to errors of sampling.

In every instance, the difference between the two standard deviations is not significant. It may be assumed, therefore, that the variability of the marks in each subject is much the same.

CHAPTER V

CONCLUSIONS, LIMITATIONS OF THE PROJECT AND SUGGESTIONS FOR FURTHER STUDY

Conclusions

In the light of the facts brought out in this study, a number of conclusions may be made. First, the figures in Table VII lead one to believe that when a pupil in grade nine transfers from one school to another his final mark in Social Studies will be lower than if he had not changed schools. One explanation of this finding might be that it is difficult for a teacher who receives a transient pupil to determine how much pertinent information the student absorbed in the previous school. Furthermore, because of the nature of the material, the various sections of the subject are not dealt with in the same sequence in all schools. Some of the transient students, therefore, will be taught the same unit twice but will receive no instruction in another section of the course. Finally, it is more difficult to organize remedial work in Social Studies than it is in some of the other subjects.

A second conclusion suggested by the data in Table VII is that this study did not reveal a significant relationship between transiency and performance in any subject other than Social Studies. It might be noted at this point that in

all subjects containing an organized body of knowledge, the differences, however small, between the transient and non-transient pupils are in favor of the latter. This might indicate a trend which could be verified only by further study.

Finally, it seems reasonable to make the generalization that grade nine pupils in Alberta lose in some fields by moving from one school to another during the term. However, the amount of the lowering of the marks, even in the subject where it is greatest, is not enough to be alarming. The better performance by the transients in Reading and Literature is very small. Suffice it to say that there is a possibility that transiency benefits a pupil in these fields.

Limitations of the Project

Many interesting phases of the problem of transiency could not be dealt with in this study because the number of matched pairs that could be established was small. While one hundred pairs is a respectable number, subdivision of the group would have meant dealing with very few cases or even with individuals. For example, if the boys only were selected for study, there would be fifty matched pairs to deal with, and if, say, the over-age girls were isolated, there might be less than a half-dozen cases.

The fact that this study was limited to grade nine, and the reasons for this, have already been mentioned. There is no valid reason for assuming that the findings of this investigation can be applied to the pupils of any other grade.

The limitation of the study is emphasized further by the fact that even some of the grade nine transients were excluded. No cases were taken from ungraded schools, the numerous transients from other provinces were omitted as were all pupils who had been accelerated or retarded. It would certainly be unwise to say that the findings of this study could be applied to these groups.

Suggestions for Further Study

The effect of transiency in grade nine might vary greatly with different groups of students. If five hundred or one thousand transients could be found (and they could be located over a period of years) they could be matched as before with non-transients and then arranged in smaller sub-groups so that studies such as the following could be made:

(1) A comparison of the effect of transiency on boys with the effect on girls.

(2) The effect of transiency on the over-age pupils and on those who are under-age. It might well be that pupils older than the average for the

grade would gain or lose more than those below the average age.

(3) The effect on the dull, the average and the bright pupils. There is a possibility that one of these groups might actually benefit by transiency.

(4) The effect of several transfers in a year.

(5) The effect of several transfers over a period of years. The long-term effect of transiency might be much different from the immediate effect, which was the object of this study.

The matched-pairs method of study has advantages and also some disadvantages. The most obvious imperfection is that no student, transient or non-transient, can be matched perfectly. A more valid approach would be to compare the progress and achievement of a student before he moved with these same factors after he transferred. This could be done by the case-study technique, which would also give a much more complete picture of each pupil.

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APPENDIX A

FORM I

(Last Name) (First Names)

Name _____

(Day) (Month) (Year)

Date of Birth _____ School Now Being Attended _____

In the space below please list the schools you attended in grades 7, 8 and 9, and give the number of months spent in each school. If you spent more than one year in any grade, list that grade twice, on different lines.

Grade	Schools Attended	No. of Months In Each

APPENDIX B

CALCULATION METHODS USED IN THIS STUDY

The Arithmetic Mean was calculated from the raw data, while the Standard Deviation (SD) was found by using a grouped frequency distribution with an arbitrary origin.[1] The following formulas were then used in further calculations:

$$SD = i\sqrt{\frac{\Sigma f(x')^2}{N} - \left(\frac{\Sigma fx'}{N}\right)^2} \qquad (2)$$

$$SE_{(\bar{M}_1 - \bar{M}_2)} = \sqrt{\frac{SD_1^2 + SD_2^2}{N - 1}} \qquad (3)$$

$$CR_1 = \frac{\bar{M}_1 - \bar{M}_2}{SE_{(\bar{M}_1 - \bar{M}_2)}} \qquad (4)$$

$$SE \text{ of } SD = \frac{.71(SD)}{\sqrt{N}} \qquad (5)$$

$$SE \text{ of } (SD_1 - SD_2) = SD_1^2 + SD_2^2 \qquad (6)$$

$$CR_2 = \frac{SD_1 - SD_2}{SE_{(SD_1 - SD_2)}} \qquad (7)$$

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[1] H.M. Walker, Elementary Statistical Methods, New York, Henry Holt & Co., 1943, p. 116, Table XXIV.

[2] Ibid.

[3] Ibid., p. 287.

[4] H.E. Garrett, Statistics in Psychology and Education, New York, Longmans, Green & Co., 1954, p. 215.

[5] Ibid., p. 195.

[6] Ibid., p. 233.

[7] An application of the formula for CR_1.

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